

| <b>A. CLASSIFICATION OF SUBJECT MATTER</b><br>IPC 7 H05K1/16 H05B33/12  |   |  |
|---|---|--|
| According to International Patent Classification (IPC) or to both national classification and IPC   |   |  |
| <b>B. FIELDS SEARCHED</b><br>Minimum documentation searched (classification system followed by classification symbols)<br>IPC 7 H05K H05B   |   |  |
| Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched   |   |  |
| Electronic data base consulted during the international search (name of data base and, where practical, search terms used)<br>EPO-Internal, IBM-TDB   |   |  |
| <b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>   |   |  |
| Category *  | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No.  |
| Y   | DE 197 15 658 A (PHILIPS LEITERPLATTEN AT GMBH) 22 October 1998 (1998-10-22)<br>column 5, line 2 - column 6, line 11;<br>figures 1-6                    | 1-51   |
| Y   | US 2002/039000 A1 (TAKEISHI TAKU ET AL)<br>4 April 2002 (2002-04-04)<br>page 1, paragraph 4-14  | 1-51   |
| Y   | US 4 839 558 A (MIERZWINSKI EUGENE P)<br>13 June 1989 (1989-06-13)<br>cited in the application<br>column 2, line 39 - column 4, line 35;<br>figures 2,3 | 1-51   |
|   | -----<br>-/--   |  |
| <input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.   |   |  |
| * Special categories of cited documents :<br>*A* document defining the general state of the art which is not considered to be of particular relevance<br>*E* earlier document but published on or after the international filing date<br>*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)<br>*O* document referring to an oral disclosure, use, exhibition or other means<br>*P* document published prior to the international filing date but later than the priority date claimed<br>*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention<br>*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone<br>*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.<br>*&* document member of the same patent family |   |  |
| Date of the actual completion of the international search<br><br>20 December 2004   |   | Date of mailing of the international search report<br><br>29/12/2004 |
| Name and mailing address of the ISA<br>European Patent Office, P.B. 5818 Patentlaan 2<br>NL - 2280 HV Rijswijk<br>Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,<br>Fax: (+31-70) 340-3016  |   | Authorized officer<br><br>Debre, A                                   |

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| C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT |   |                       |
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| Category *   | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
| A  | EP 0 854 662 A (HAGE GMBH & CO KG ;<br>LEISING GUENTHER PROF DIPL ING (AT))<br>22 July 1998 (1998-07-22)<br>cited in the application<br>column 4, line 17 - column 5, line 10;<br>figures 2-4 | 1-51                  |
| A  | US 4 594 282 A (KAWAGUCHI MASASHI ET AL)<br>10 June 1986 (1986-06-10)<br>column 1, line 9 - column 2, line 68;<br>figure 1  | 1,34                  |

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| Patent document<br>cited in search report |    | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
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